

REMARKS

Summary of Action

In the subject office action, the Examiner rejected claims 4-15 under 35 USC 103(a) as being unpatentable over Gregory (USP 536,927) in view of SOMFY's Catalog.

Summary of Response

In response to the 103(a) rejections, Applicant respectfully traverses the Examiner's rejections as discussed below.

Rejection of claims 4-15 under 35 USC 103(a)

Claims 4-15

The Examiner asserted that Gregory discloses an elevator apparatus comprising a tower assembly having a vertical track; a container, which is of a one piece construction, slidably received on the tower; a pulley system having a plurality of upper sheaves; a pair of lifting cables; a plurality of lower sheaves or drums; and a gear assembly wherein the lower sheaves fixedly mounted to a rotatable cylindrical shaft to thereby wind and unwind the lifting cables to selectively raise and lower the elevator; but does not show the rotatable cylindrical shaft encasing a drive motor and engaged by the drive motor for rotation of the shaft, which is found in the SOMFY catalog.

The Examiner continues that "it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide HIPRo LT50 motor on the Gragory's apparatus as taught by SOMFY's Catalog to thereby wind and unwind the lifting cables to selectively raise and lower the elevator.

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Applicant traverses this assertion on a number of grounds. SOMFY claims to have produced the first tubular motor in December 1967. The Gregory reference is from 1895. Applicant filed the subject application in 1999. For the 32 years that the two references have been available, the art had not recognized the combination as proposed by the Examiner nor the subject matter of applicant's invention. The benefits of such a combination are many, including, but not limited to, reduction in size of apparatus at the tower lower end, elimination of exposed chain, and the direct drive of cables.

The Gregory reference is an ideal example of one of the challenges posed to the installer of elevating systems, namely, the bulkiness of the drive motor system. Please note the inherent bulkiness and relatively large assembly making up the motor assembly at the tower lower end of the Gregory reference. In many installations, local code requirements require the drive motor to be a certain distance above the floor or bottom of the shaft into which the elevating system is placed. This requires that additional extension of the lower end of the shaft is necessary to accommodate the drive apparatus and provide the necessary shaft bottom clearance. In many cases, this requires subterranean excavation for applications wherein the elevating system is to provide access on a first floor. One example, among others, is the residential application in homes without basements. The additional excavation and possibly the plumbing of drainage at the bottom of the shaft to prevent water accumulation, is costly, impractical for many installations, and impossible for many other installations.

One approach to solving this problem used in the art is the placement of the motor drive system above the tower which has it's own limitations, such as, ease of serviceability, structural concerns, increased power and load requirements, increased shaft height requirements which is particularly limiting for residential purposes due to impact on architecture and aesthetics, and

increased counterweight assembly complexity. Although above-tower placement has its challenges, it remains a dominant design in the art and a major impetus for residential applications.

The inherent compactness of the tubular motor substantially eliminates the below-tower motor assembly issues. Excavation requirements are drastically reduced, providing in many cases that no excavation is required for first-floor access. This is particularly evident in residential applications wherein the home has an available crawlspace that would not be deep enough to accommodate traditional below-tower motor assemblies, but can easily accommodate the compact motor assembly of the present invention. The residential market for elevating systems is thus expanded, a market that the applicant has had successful sales.

The increased safety, reduced maintenance, and increased customer acceptance of applicant's invention is evident with the elimination of exposed chain and associated drive apparatus, or other apparatus of motor driven chain or belts. Eliminating motor-driven chain and belts eliminates the safety concern over breakage and seizing. The periodic maintenance and replacement of the chain or belt is also eliminated which is a great benefit for residential applications wherein periodic inspection by authorities are not common.

Direct motor-driven drive systems are known but have the inherent limitations of motor placement. In many cases, the motor drives the driveshaft from an end requiring that the motor be placed off to the side of the driveshaft. In many cases, this placement requires that the lower end of the elevator shaft be made with additional width to accommodate the extension of the motor assembly. This can be prohibitive in many installations, particularly residential installations where architectural considerations are critical. Applicant's invention substantially eliminates these issues.

The Applicant submits that there is no disclosure in either Gregory nor the SOMFY catalog to suggest the application of the tubular motor in elevating platforms. There is nothing in Gregory or the SOMFY catalog to suggest there may be an advantage with the usage of the tubular motor with elevating platforms.

For the reasons stated above, among others, Applicant submits, therefore, that it was not obvious in the art to make the combination as asserted by the Examiner at the time of the invention. Applicant submits that the desirability and market potential, particularly residential, of an elevating platform with the benefits provided by Applicant's invention is highly motivating to the art for a solution, but in the 32 years of component availability, the solution was not recognized.

Applicant respectfully submits that claims 4-15 are not obvious and are therefor patentable, in view of the cited references, and requests reconsideration and allowance of the claims.

Claims 5 & 11

Claims 5 and 11 depend on claims 4 and 10, respectively, incorporating their limitations. Therefore, for at least the same reasons provided above, Applicant submits that claims 5 and 11 are patentable over Gregory in view of the SOMFY catalog, and requests reconsideration and allowance of the claims.

The Examiner asserted that Gregory discloses upper pulleys substantially pivotally mounted on bearings to respond to cable length. Applicant respectfully disagrees with this assertion.

Applicant cannot find in the Gregory reference "upper sheaves are rotatably coupled to a sheave mount, the sheave mount pivotally mounted at the top of the tower assembly" (claim 5) nor "pulley system is pivotally mounted (claim 11), the pulley system having two spaced-apart pulleys" (claim 10).

Applicant's invention provides a pulley system comprising two pulleys supported by a common structure, the pulley system, being pivotally mounted such that both pulleys simultaneously pivot about a common pivot point. This provides, among other things, a provision to compensate for differential cable length ensuring substantially equal loading on each cable, as well as being a safety feature in stopping the elevator travel upon extreme pulley system skew. It appears to the Applicant that Gregory shows two pulleys supported on a common rigid frame (2), shown in Figure 1. Granted, it can be assumed that each pulley has a bearing for rotation of the hub about the hub axis as this is a common pulley configuration. It appears, though, that there is no provision for "a sheave mount or pulley system comprising two pulleys" wherein the pulleys simultaneously pivot as a unit about a common pivot point. As shown in Gregory, the frame upon which the pulleys are mounted has no provision for pivotal motion. Therefore, the reference does not anticipate the structure found in Applicant's invention.

Applicant respectfully submits that the subject matter of claims 5 and 11 is not found in the Gregory reference and therefor are patentable, and requests reconsideration and allowance of the claims.

Claims 6 and 12

Claims 6 and 12 depend on claims 4 and 10, respectively, incorporating their limitations. Therefore, for at least the same reasons provided above, Applicant submits that claims 6 and 12 are patentable over Gregory in view of SOMFY catalog, and requests reconsideration and allowance of the claims.

The Examiner asserted that it would have been obvious design choice to provide an art orientated well-known turnbuckle on the modified Gregory's elevator system. Applicant submits that if such an assertion was true, at least

one of the many references cited by the Examiner would disclose, show or speak of turnbuckles used for the adjustment of cable length. Such is not the case. Applicant requests that the Examiner provide a reference to support the assertion or withdraw the rejection.

Claims 8 & 14

Claims 8 and 14 depend on claims 4 and 10, respectively, incorporating their limitations. Therefore, for at least the same reasons provided above, Applicant submits that claims 8 and 14 are patentable over Gregory in view of the SOMFY catalog, and requests reconsideration and allowance of the claims.

The Examiner asserted that Gregory shows a guide bar (7)(see Fig. 3) adjacent to and parallel with the cylindrical shaft and it appear that the guide bar would be capable of guiding the two cables on and off the sheaves in a preferred direction.

Applicant respectfully disagrees with this assertion. Applicant cannot see how the bar (7) in the Gregory reference interacts with the cables to guide the cables onto the sheaves, as provided in Applicant's invention. It appears, based on Figure 3, that the bar (7) is parallel with the top of the sheave and provides a structure onto which the steel band 14 is coupled, and is substantially centered over the sheave axle as it appears that the axle is coupled to the side of the frame with a simple band clamp. Applicant asserts that the bar (7), by being substantially centered over the axle and of an unspecified distance from the sheaves, will not interact with the cable and therefore will not guide the cable.

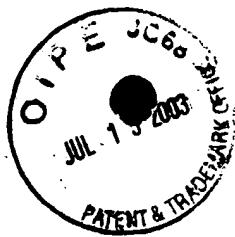
Applicant's claims provide a guide bar that is spaced from the sheaves to guide the two cables onto or off of the lower sheaves in a preferred direction. For example, at a spacing of less than the diameter of the cable, wherein the cable

overlaps a previously wound portion of cable, the guide bar will knock the cable off of the winding and in proper placement onto the cylindrical shaft.

Applicant respectfully submits that the subject matter of claims 8 and 14 is not found in the Gregory reference and therefor are patentable, and requests reconsideration and allowance of the claims.

Claims 9 & 15

Claims 9 and 15 depend on claims 4 and 10, respectively, incorporating their limitations. Therefore, for at least the same reasons provided above, Applicant submits that claims 9 and 15 are patentable over Gregory in view of the SOMFY catalog, and requests reconsideration and allowance of the claims.



Conclusion

In view of the foregoing, Applicants respectfully submit that claims 4-15 are all in condition for allowance, and early issuance of the Notice of Allowance is respectfully requested.

Please charge any shortages and credit any overages to Deposit Account No. 500393.

Respectfully submitted,
Applicant

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